

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

RECEIVED

JUN 16 2000

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

MM Docket No. 00-39

In the Matter of)
)
Review of the Commission's Rules and)
Policies Existing Affecting the Conversion)
to Digital Television)

REPLY COMMENTS OF SINCLAIR BROADCAST GROUP, INC.

SHAW PITTMAN
2001 Pennsylvania Avenue, N.W.
Suite 400
Washington, D.C. 20006
(202) 659-3494

Martin R. Leader
Stephen J. Berman

Its Attorneys

Dated: June 16, 2000

No. of Copies rec'd 0 + 12
List ABCDE

Summary

Sinclair Broadcast Group, Inc. (“Sinclair”) hereby replies to comments filed in response to the Commission’s Notice of Proposed Rulemaking (“NPRM”) on the review of its policies regarding the conversion of the broadcast industry to digital television (“DTV”). Sinclair continues to urge the Commission to act in the best interests of its broadcast licensees and the U.S. viewing public by giving broadcasters the flexibility to operate using either the ATSC 8-VSB or COFDM-based DVB-T modulation standard. With such flexibility, broadcasters will be able to select the technology that best suits their business plans and enables them to maximize service to their local communities.

By all available measures the transition to broadcast DTV is a continuing failure, and the reason for this failure is clear: The inability of the ATSC 8-VSB standard to meet the needs and expectations of consumers and broadcasters, and, more importantly, the inability of ATSC 8-VSB to permit ease of reception and reliable over-the-air service to viewers using small, simple antennas in broadcasters’ core business areas. Field trials by Sinclair and GE/NBC have demonstrated that the ATSC 8-VSB standard cannot now support such performance. Both the ATSC itself and the Association for Maximum Service Television (“MSTV”) have created special task forces to review ATSC 8-VSB performance, and even 8-VSB proponents concede the existence of ATSC 8-VSB reception difficulties in their comments. Meanwhile, the COFDM-based DVB-T standard, adopted in a majority of countries around the world, is recognized universally as providing high-quality reception even under complex multipath conditions, and equipment for DVB-T transmission and reception is already widely available in the global marketplace. Given the development of DVB-T and this almost unanimous recognition of the ATSC 8-VSB reception problem, the burden has now shifted to receiver and chipset manufacturers and other ATSC 8-VSB proponents to show why the Commission should not give broadcasters the flexibility to operate using either the ATSC 8-VSB or DVB-T standard.

8-VSB advocates have failed to meet this burden. In their comments, 8-VSB proponents adopt several approaches in an effort to justify continued exclusive reliance on ATSC 8-VSB. Several

commenters point to results from laboratory testing that purportedly demonstrate improved 8-VSB performance under multipath conditions. The Commission must reject these laboratory claims, since they are entirely unable to reproduce the randomness of real-world, complex multipath environments. ATSC 8-VSB proponents also point to alleged field trial results, including CBS' testing in Philadelphia and alleged demonstrations by Thomson in numerous cities around the country. The Commission should dismiss the significance of these self-serving presentations. CBS and Thomson conducted their private field trials under carefully guarded conditions and shielded their test processes from observation by anyone other than their invited guests. The Commission should give credence only to field trials that permit independent observation and in-process, professional peer review of test methodologies by neutral and even opposing parties.

On the basis of these supposed laboratory and field trial results, receiver and chipset manufacturers such as Thomson, Philips, and NxtWave claim that ATSC 8-VSB reception is already much better today and that multipath problems will be resolved entirely within the next year or two. The Commission should now reject these promises as irrelevant, self-serving marketing claims. Almost a year ago, Motorola and NxtWave made numerous promises about improvements in ATSC 8-VSB performance, but these claims have never been fulfilled or backed up by valid test data. Given this loss of credibility over the past year, manufacturers' promises by themselves should not prevent the Commission from giving broadcasters flexibility with respect to DTV modulation.

Nor is it enough for 8-VSB receiver and chipset manufacturers to merely meet the original goals for DTV established during the standards-setting process, including NTSC replication. Consumer expectations for telecommunications products have been dramatically elevated since that time, and broadcasters must be able to meet these expectations. Unlike DVB-T, the ATSC 8-VSB standard in its current form cannot now and may never support portability (currently provided by the NTSC standard) and other service elements that should be minimum requirements in any DTV system.

While numerous 8-VSB proponents argue that a shift to flexibility with respect to DTV modulation would substantially delay the transition to DTV, it is in fact maintenance of the status quo that threatens indefinite delay of the digital conversion. The DTV transition is already down to a snail's pace, and in their comments 8-VSB proponents generally concede that it will be a year or more before the ATSC 8-VSB multipath reception problems might be fully resolved (and much more than a year if what is required is a new 8-VSB standards-setting process). Rational consumers should not even consider purchasing an ATSC 8-VSB receiver until that time. Of course, the Commission should not trust these manufacturer promises regarding improved ATSC 8-VSB performance, and Sinclair believes that continued exclusive reliance on 8-VSB technology would risk a possible decade-plus delay in the digital transition.

In contrast, a decision to give broadcasters the flexibility to operate using either the ATSC 8-VSB or DVB-T standard would be a certain, risk-free solution to the current 8-VSB reception problems. DVB-T is a proven technology that has been implemented and commercialized outside the United States, and it has been and will continue to be demonstrated and tested domestically. Sinclair believes that the resolution of any outstanding technical issues for DVB-T operations could likely be conducted in little more than six months, and that DVB-T set-top boxes could become rapidly available thereafter. In this scenario, the Commission could foster consumer confidence by requiring that all DTV receivers be able to receive DVB-T service, as well as ATSC 8-VSB service, by some date certain in 2002. This action would have only a *de minimis* impact on the cost of consumer receivers.

Certainly, as the Commission decides how best to proceed with the digital transition, it should work to protect the interests of its broadcast licensees, who have been required to make a huge investment in the digital conversion and have the most to lose if the DTV transition fails. The need for such protection is critical at the moment, with broadcasters literally at the mercy of the very equipment manufacturers that failed to provide a viable first-generation ATSC 8-VSB product to the U.S. public.

The Commission should be less concerned with the interests and views of receiver and chipset manufacturers in this proceeding, whose goal is to sell as many digital display units as possible, without regard to the method of signal delivery. Manufacturers did not meet the design challenges associated with consumer reception of ATSC 8-VSB service, and, in the wake of this failure, they are now making a concerted effort to save face and shift blame. They continue to tell the Commission and the public to simply wait patiently for improvements to their receivers, but their knowing and willing delivery of what are essentially defective DTV receivers into the marketplace should serve to discredit these parties and their promises. Similarly baseless is 8-VSB proponents attribution of the slow progress of the DTV transition to broadcasters' supposed failure to generate HDTV content.

The 8-VSB proponents again point to several technical and economic reasons not to give broadcasters the flexibility to operate using either the ATSC 8-VSB or DVB-T standard. All of these arguments should be rejected. With respect to signal coverage, Sinclair's open field trials have demonstrated that there is no material difference in the receivability of the 8-VSB and DVB-T signals at the market periphery. Moreover, unlike with 8-VSB in urban areas, DVB-T broadcasters and viewers could both take steps to ensure that COFDM signals are receivable at the market periphery. With respect to the DTV Table of Allotments, Sinclair believes that a flexible policy with respect to DTV modulation can be established without significant modification of the Table. As Sinclair has proposed, the Commission could require broadcasters operating using the DVB-T standard to limit their power levels to the extent necessary to avoid causing interference to other NTSC and DTV stations above what would result from stations' ATSC 8-VSB operations at maximum permitted power levels. Finally, concern over consumers' prior investment in ATSC 8-VSB technology is also no basis for maintaining the status quo, since this group includes only a tiny fraction of U.S. TV households and ATSC 8-VSB service will be able to continue in any case.

TABLE OF CONTENTS

	<u>Page</u>
Summary	i
Background	2
Discussion	5
I. The Burden of Demonstrating Why the Commission Should Not Give Broadcasters the Flexibility to Operate Using Either the ATSC 8-VSB or the COFDM-based DVB-T Standard is Now on 8-VSB Proponents, and Receiver and Chipset Manufacturers Have Failed to Meet This Burden.....	5
A. The totality of circumstances warrants a shift of the evidentiary burden to 8-VSB proponents.....	5
B. The laboratory data presented by 8-VSB proponents fails to satisfy this burden	7
C. 8-VSB proponents' references to field trials do not satisfy this burden	9
1. Results from secret field trials that lack neutral observers and in-process, professional peer review should not be given consideration by the Commission.....	9
2. The tests conducted by CBS were flawed.....	10
D. New promises from receiver and chipset manufacturers regarding improvements in 8-VSB performance lack credibility and cannot serve as a legitimate basis for critical Commission policy.....	11
E. In the new digital marketplace, neither a rigid, residence-based, rooftop-antenna-delivered video service nor mere NTSC replication is enough.....	13
II. Issues Related to Delay, Signal Coverage, and the DTV Table of Allotments Provide No Basis for a Commission Refusal to Give Broadcasters the Flexibility to Operate Using Either the ATSC 8-VSB or DVB-T Standard.....	16
A. A decision to give broadcasters the flexibility to operate using either the ATSC 8-VSB or DVB-T standard presents less of a risk of delay in the DTV transition than continued exclusive reliance on the non-performing 8-VSB standard	16
B. Concerns with DVB-T signal strength are overblown, and, in contrast to the 8-VSB reception problem, broadcasters and viewers can compensate for any reduction of broadcast signal coverage that might result from a shift to DVB-T operations.....	21

- C. A decision to give broadcasters the flexibility to operate using either the ATSC 8-VSB or DVB-T standard will likely not require any change to the DTV Table of Allotments 23

- III. The Commission must act in the interest of U.S. broadcast licensees and all U.S. television households rather than receiver and chipset manufacturers and early adopters 24
 - A. Broadcast licensees have been required to make a huge investment to convert to digital operations, and their businesses will be devastated if the DTV transition is a failure..... 24

 - B. The views of equipment manufacturers should carry less weight in this proceeding, and the Commission should not reward their efforts to blame others for the ongoing failure of DTV 25

 - C. The interest in protecting consumers who have already purchased 8-VSB DTV receivers is outweighed by the interest in ensuring ease of reception and reliable over-the-air DTV service for the U.S. public..... 28

- Conclusion 30

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.**

In the Matter of)	
)	
Review of the Commission's Rules and)	MM Docket No. 00-39
Policies Existing Affecting the Conversion)	
to Digital Television)	

REPLY COMMENTS OF SINCLAIR BROADCAST GROUP, INC.

Sinclair Broadcast Group, Inc. ("Sinclair") hereby replies to comments filed in response to the Commission's Notice of Proposed Rulemaking ("NPRM") in the above-captioned review of its policies regarding the conversion of the broadcast industry to digital television ("DTV"). Given the events of the past year, the burden is clearly now on the proponents of continued exclusive reliance on 8-VSB technology to demonstrate that the existing DTV modulation standard will, within a reasonable period, permit ease of reception and reliable over-the-air service to viewers using small, simple antennas in broadcasters' core business areas. As shown by their comments, receiver and chipset manufacturers and other advocates for the status quo have not yet met this burden. Accordingly, the Commission should now act in the best interests of its broadcast licensees and the U.S. viewing public by giving broadcasters the flexibility to operate using either the ATSC 8-VSB or COFDM-based DVB-T standard. With such flexibility, broadcasters will be able to select the technology that best suits their business plans and enables them to maximize service to their local communities. In the absence of such action, broadcasters will face an unacceptable level of uncertainty and risk as they make the substantial investments necessary for the digital transition.

Background

Sinclair's Comments. On May 17, 2000, Sinclair and other interested parties filed comments on the Commission's Notice of Proposed Rulemaking reviewing its rules and policies for the transition to digital television ("DTV"). In its Comments, Sinclair once again urged the Commission to give broadcasters the flexibility to operate using either the ATSC 8-VSB or the COFDM-based DVB-T standard. Sinclair pointed out that the DTV conversion to this point is a failure, achieving only miniscule DTV receiver penetration, because of the inability of the ATSC 8-VSB system to overcome complex multipath conditions and provide ease of reception and reliable over-the-air service to viewers using small, simple, consumer-grade antennas in broadcasters' core business areas. ATSC 8-VSB also cannot support "channel surfing" and other viewing functionalities in many markets, and the absence of hierarchical modulation capability will prevent the provision of portable 8-VSB services for the foreseeable future. Sinclair pointed out that these service limitations are unacceptable in this era of advanced telecommunications, and urged the Commission not to stifle the new entrepreneurial energy in the broadcast industry by condemning broadcasters to a fixed, rigid, residential, rooftop-antenna-delivered video service.

Sinclair pointed out that the COFDM-based DVB-T standard has proven capabilities to match the claims regarding its performance, enabling broadcasters to overcome complex multipath conditions and provide ease of reception and reliable over-the-air service across almost any reception environment. DVB-T, adopted in a majority of countries around the world, permits hierarchical modulation and the simultaneous transmission of HDTV and portable SDTV programming streams. Sinclair pointed out that DVB-T currently supports data rates of 24 Mbps and will conceivably support higher rates in the future¹ –

¹ A recent technical analysis indicates that COFDM-based technology will likely be able to support data rates higher than 24 Mbps. See "OFDM-Based Turbo-Coded Hierarchical and Non-

Footnote continued on next page

in contrast to the forever frozen 8-VSB data rate of 19.39 Mbps – and permits on-channel retransmission methods that promise to expand access to DTV service in remote areas.

Counter to the claims of Sinclair’s critics, Sinclair indicated that adoption of a flexible DTV modulation policy would pose a smaller risk of meaningful delay than continued exclusive reliance on the unsubstantiated claims of receiver and chipset manufacturers. In addition, Sinclair noted that the regulatory principle favoring a single modulation standard becomes counterproductive where, as here, the technology in question does not work, and this principle should not prevent the Commission from taking the steps necessary to save the DTV transition. Sinclair urged the Commission to no longer rely on promises from various self-serving receiver and chip manufacturers in its formulation of critical DTV policies, and asked instead that the Commission act in the best interest of the U.S. broadcast industry and its viewing public.

Support for Reexamination of the ATSC 8-VSB Standard. Numerous commenters either support the reexamination of the existing DTV modulation standard or agree with Sinclair that the Commission should give broadcasters the flexibility to operate using either the ATSC 8-VSB or the COFDM-based DVB-T standard. Sinclair has previously pointed to widespread broadcaster support for its Petition, and, in fact, the vast majority of commenting broadcasters (either directly or through coalitions or broadcaster associations) that addressed this issue favor either a reassessment of ATSC 8-VSB or the expeditious adoption of a flexible DTV modulation policy.²

Footnote continued from previous page

hierarchical Terrestrial Mobile Digital Video Broadcasting,” IEEE Transactions on Broadcasting, Vol. 46, No. 1 (March 2000).

² Commenters from the broadcast industry that support a reexamination of the existing ATSC 8-VSB standard include AAPT, ALTV, Blade, COBI, and the Joint Broadcasters (a coalition including MSTV, NAB, Tribune, Chris-Craft, NBC, Disney, and ABC). Those broadcast commenters supporting a Commission decision to give broadcasters the flexibility to operate using either the ATSC 8-VSB or DVB-T standard include Pappas, Paxson, Pegasus, and Univision.

Supporters of Continued Exclusive Reliance on 8-VSB. Only two broadcast companies, Belo and Fox, are among those commenters that disagree with Sinclair on the DTV modulation standard issue. The primary supporters of continued exclusive reliance on the ATSC 8-VSB standard are from the community of receiver and chipset manufacturers. These commenters include CEA, Motorola, NxtWave Communications, Philips Electronics, Thomson Consumer Electronics, and Zenith Electronics.³ For the most part, these commenters rely on the same arguments. They argue that the early problems with ATSC 8-VSB reception were due to certain deficiencies in 8-VSB receiver design, not to any problems intrinsic to ATSC 8-VSB modulation standard itself. These commenters generally claim that changes in 8-VSB receiver design have already led to improved performance in 8-VSB receivers commercially available today, and that additional improvements in subsequent-generation 8-VSB receivers over the next couple of years will eliminate the ATSC 8-VSB multipath reception problem entirely. In support of these claims of improved performance, most of these commenters point to laboratory test results or the results from the CBS field trials earlier this year.

All of the receiver and chipset manufacturers assert that the ATSC 8-VSB standard is better suited to the U.S. broadcast environment than COFDM and DVB-T. They claim that 8-VSB, among other things, offers greater signal coverage, higher data rates, and lesser potential for interference to NTSC stations during the transition. Finally, all of these commenters argue that a decision to give broadcasters the flexibility to operate using either the ATSC 8-VSB or DVB-T standard would create great uncertainty in the broadcast industry and would delay the progress of the DTV transition by at least several years.

³ This is in addition to the ATSC itself, which limits its comments on the DTV modulation issue to a description of its Task Force agenda. Comments of the Advanced Television Systems Committee (May 17, 2000).

Discussion

By all available measures the transition to broadcast DTV is a continuing failure, and the fundamental reason for this failure is clear: The inability of the ATSC 8-VSB system to meet the needs and expectations of consumers and broadcasters, and, more importantly, the inability of this system to provide ease of reception or ubiquitous, reliable over-the-air service to viewers using small, simple antennas in broadcasters' core business areas (Grade A contours). Almost nine months after Sinclair presented its study demonstrating the fundamentally flawed performance of 8-VSB technology, the grounds for a decision to give broadcasters the flexibility to operate using either the ATSC 8-VSB or the COFDM-based DVB-T standard are more compelling than ever.

I. The Burden of Demonstrating Why the Commission Should Not Give Broadcasters the Flexibility to Operate Using Either the ATSC 8-VSB or the COFDM-based DVB-T Standard is Now on 8-VSB Proponents, and Receiver and Chipset Manufacturers Have Failed to Meet This Burden

A. The totality of circumstances warrants a shift of the evidentiary burden to 8-VSB proponents

Given the totality of circumstances surrounding the development of ATSC 8-VSB service, the burden of demonstrating why broadcasters should not have the flexibility to operate using either ATSC 8-VSB or DVB-T is now on 8-VSB proponents. In the spring and summer of 1999, Sinclair conducted open ATSC 8-VSB/COFDM comparative testing in Baltimore that demonstrated that the ATSC 8-VSB standard could not support ease of reception and reliable over-the-air service to DTV receivers using small, simple antennas in broadcasters' core business areas, while at the same time showing that DVB-T does meet these requirements.⁴ This fundamental flaw in the ATSC 8-VSB standard has been confirmed

⁴ "Comparative Reception Testing of 8-VSB and COFDM in Baltimore," Nat Ostroff, Vice President New Technology, Sinclair Broadcast Group, and Mark Aitken, Advanced Technology Group, Sinclair Broadcast Group (September 24, 1999) ("*Comparative Study*").

by GE and NBC in a subsequent field trial.⁵ In addition, all over the world, other governments have rejected and continue to reject ATSC 8-VSB in favor of COFDM-based technologies. Most recently, a study commissioned by the Brazilian national telecommunications agency (considered by ATSC to be a neutral party) concluded that, based on extensive field trials, the ATSC 8-VSB standard does not provide adequate performance under real-world multipath conditions and does not meet the Brazilian national technical requirements for DTV.⁶ Critically, the study concluded that new ATSC 8-VSB receivers, recently developed and made available for the Brazilian tests, do not exhibit any improvement under real-world conditions. Due at least in part to this finding, the study recommended the adoption of a COFDM-based standard. In addition, in Argentina, which actually had previously adopted the ATSC 8-VSB standard in November 1998, the Secretary for Communications recently announced the Argentinean government's decision to reopen its selection process for a modulation standard.⁷

The severity of the impairment of ATSC 8-VSB over-the-air reception is confirmed by the recent decisions of both the ATSC itself and the Association for Maximum Service Television ("MSTV") (the latter of which was joined and supported by NAB) to create special task forces to review 8-VSB performance and, at least in the case of MSTV, to investigate the benefits of COFDM-based technology.⁸

⁵ See "GE test blows hole in DTV; Heaps more doubt on digital standard," *Electronic Media* (February 14, 2000).

⁶ Brazilian ABERT/SET Study Group Finalizes the Technical Evaluation of the Three Digital Television Systems, June 2000.

⁷ See, e.g. <http://www.ambito-financiero.com/00-05-04/espectaculos001.htm>; <http://webstar.com/hdtv/argentinanewsrelease.html>.

⁸ In late March, the ATSC announced the formation of a "Task Force of System Performance" to evaluate the performance of the ATSC 8-VSB modulation standard. The ATSC invited a wide variety of parties to participate in this process, including broadcasters, chip vendors, and consumer electronics manufacturers. See "Task Force to Scrutinize DTV Reception," *TechWeb News* (April 6, 2000); "ATSC Forms Task Force to Study RF System Performance," *Audio Week* (March 27, 2000). In early April, MSTV announced that it would conduct a six-month program of comparative testing of the performance of ATSC 8-VSB and COFDM, a process that will likely involve a large cross-section of broadcasters. See "Broadcasters at NAB Press for Current DTV Standard, Cable Actions," *Communications Daily* (April 11, 2000).

Furthermore, the comments of the 8-VSB proponents themselves concede the existence of reception difficulties; for instance, Philips admits the existence of “early difficulties with indoor reception of over-the-air DTV signals in strong multipath interference environments,” CEA concedes that “equalization in receivers [was] inadequate to handle the complex multipath being experienced at certain sites,” and NxtWave indicates that the first receiver designs “did not deal adequately with actual over-the-air signal reception in some situations.” Philips Comments at 6; CEA Comments at 22-23; NxtWave Comments at 3.

Thus, given the almost universal recognition of the reception problems that have plagued ATSC 8-VSB receivers, the burden has shifted to receiver and chipset manufacturers and other 8-VSB proponents to demonstrate that 8-VSB can support ease of reception and reliable over-the-air service to viewers with simple antennas in broadcasters’ core business areas. As discussed below, 8-VSB proponents adopt several approaches in an effort to justify continued exclusive reliance on 8-VSB, but they fail to meet this burden.

B. The laboratory data presented by 8-VSB proponents fails to satisfy this burden

In an effort to justify continued exclusive reliance on 8-VSB, several commenting receiver and chipset manufacturers point to results from laboratory testing that purportedly demonstrate improved 8-VSB performance under multipath conditions. These results are displayed in various charts and graphs that NxtWave, Philips, and Zenith incorporate into their comments. NxtWave Comments at 7-8; Philips Comments at 8-11; Zenith Comments at Appendix A, B.

The Commission must reject these laboratory claims as inconclusive with respect to real-world conditions. For the most part, these commenters simply state that technological developments have resulted in this improved performance and then point to their charts as evidence. Without a description of their laboratory methodologies, detailed results from such analysis, or any indication as to how this

activity relates to actual, real-world field measurements, the Commission should not seriously consider such data.

More fundamentally, even if documented adequately, results from laboratory testing should never be the sole basis for Commission policymaking. Unlike field trials conducted under real-world conditions, laboratory tests can be designed and performed in ways that enable the testing parties to obtain their desired results. In the context of ATSC 8-VSB reception tests, for instance, an 8-VSB proponent could customize adaptive equalizers for optimal performance under a specific set of laboratory conditions. In addition, such laboratory tests are entirely unable to reproduce the randomness of real-world, complex multipath environments. As Motorola conceded in a late 1999 test report, the ability of adaptive equalizers to function in controlled test environments does not mean that they will perform successfully under real-world conditions.⁹

Nor do the abstract mathematical formula referenced by NxtWave in its comments provide meaningful support for its case that all is and will be well with ATSC 8-VSB reception. *See, e.g.*, NxtWave Comments at Appendices I, J. Nothing short of hard technical data from open, neutrally-observed, real-world field trials satisfies the burden now facing 8-VSB proponents.

⁹ *See* “Field Test Report on the MCT2100 Evaluation System – Philadelphia, PA,” Motorola DTV Operation (November 24, 1999); <http://mot-sps.com/adc/pdf/2100phprt.pdf>. This report states the following in its conclusion:

“The field test clearly reveals that multipath in the real world is much more complicated than what we are able to generate in a lab with a 6-ray dynamic ghost simulator. The field tests also revealed that the spectrum analyzer display is not always a good indication of the severity of a multipath channel. We often observed channels which had a “reasonable” looking spectrum and yet were unreceivable, while others had deep notches at particular frequencies and were received without difficulty.

It was revealing, though unfortunate, to find that in many sites (or antenna positions at a site).”

C. 8-VSB proponents' references to field trials do not satisfy this burden

1. Results from secret field trials that lack neutral observers and in-process, professional peer review should not be given consideration by the Commission

In their comments, 8-VSB proponents fail to cite any hard data from valid field trials to demonstrate the ability of ATSC 8-VSB to provide ease of reception and reliable over-the-air service to viewers using small, simple antennas in broadcasters' core business areas. CEA, NxtWave, and Zenith cite the CBS report on its Philadelphia testing,¹⁰ and Thomson mentions its ATSC 8-VSB demonstrations in numerous cities around the country, but these references should have little influence in this proceeding. CEA Comments at 22; NxtWave Comments at 10; Zenith Comments at 8; Thomson Comments at 13 n.22, 15 n.23.

First, none of the field trials and demonstrations is described in sufficient detail; they are merely cited as support for the proposition that ATSC 8-VSB performance in real-world, multipath environments has improved. In particular, the closest that Thomson comes to presenting specific evidence is its detail-free reference to successful (but statistically insignificant) demonstrations in Indianapolis and in a single mid-town Manhattan apartment building. Thomson Comments at 13 n.22.

Even if the field trial data and methodologies for the CBS and Thomson tests had been submitted with their comments, the Commission would still be right to dismiss these results as insignificant. The Commission should give credence only to field trials that are conducted in an open environment and that permit independent observation and in-process, professional peer review of test methodologies by neutral and even opposing parties. Unfortunately, CBS and Thomson conducted their private field trials under carefully guarded conditions and with invited guests only; this approach should always prevent the Commission from attributing weight to such findings, which can sometimes be the result of a careful

¹⁰ "KYW-DT DTV Field Test Report," Walter Sidas, P.E., CBS Engineering (March 28, 2000).

selection of a prequalified receiving environment. These “test results” merely serve to permit additional rhetorical bluster from 8-VSB proponents, and the Commission should conclude that their testing approach is an obvious effort to conceal the inadequacy of ATSC 8-VSB products.¹¹

In contrast, Sinclair has consistently relied on hard technical data in advocating its position before the Commission, and has in every instance exposed its test methodologies and technical analysis to neutral observation and in-process, professional peer review -- including review by those 8-VSB proponents advocating a “do nothing” posture. For instance, Sinclair’s Baltimore field trials were observed by more than three hundred eyewitnesses, including representatives of various receiver manufacturers, and Sinclair’s demonstration at the April 2000 NAB Convention was open to all convention attendees.

2. The tests conducted by CBS were flawed

Notwithstanding its failure to conduct its tests in an open environment, CBS’ tests were flawed in several respects and its results should carry little weight in the Commission’s analysis. First, while CBS’ radial testing focused on the greater Philadelphia area, its primary grid site was in Reading, PA, approximately thirty-five miles from the ATSC 8-VSB transmitter. Tests in a small market such as Reading are not representative of the more severe multipath conditions (resulting from buildings, towers, and other physical obstacles) found in the core urban areas of larger U.S. markets. This location was also removed from where the 8-VSB signal strength was greatest, another factor that reduced the complexity of the multipath environment in those tests. In fact, there were apparently no tests conducted within close

¹¹ In their comments, Fox and Philips indicate that they are initiating a joint research and study effort in order to examine and improve 8-VSB reception. Neither party provides any disclosure, however, regarding what that process will entail and what test methodologies they will be utilizing. There is no indication that any field trials conducted pursuant to this effort will be open to neutral observers or subject to professional peer review. Nor is there any indication of when the study will be concluded or any estimate as to when any resulting 8-VSB improvements will be available on a commercially reasonable basis.

proximity to the urban center of Philadelphia -- in discussing the selection criteria for outdoor sites, it is clearly stated that sites were selected “. . . starting at 10 miles from the transmitter . . . ,” clearly placing such sites outside that urban area. (It is further stated that these same sites were used for comparative outdoor versus indoor reception results, once again outside of Philadelphia’s urban center.) Thus, the CBS test procedures appear to have been designed to avoid measuring the known problems associated with the reception of ATSC 8-VSB signals in broadcasters’ core business areas, and these tests are therefore largely irrelevant to any discussion of the ATSC 8-VSB reception problem.

In addition, all of CBS’ reported testing focused on the reception of a single DTV channel, avoiding any evaluation of the ease of reception of multiple channels within that market. Also, CBS used a highly directional indoor antenna for its tests, another indication that CBS completely ignored the importance of the ability to receive multiple DTV stations from a single antenna orientation

D. New promises from receiver and chipset manufacturers regarding improvements in 8-VSB performance lack credibility and cannot serve as a legitimate basis for critical Commission policy

On the basis of the alleged laboratory and field trial results, receiver and chipset manufacturers in their comments make numerous representations and promises regarding current and future improvements in ATSC 8-VSB performance under real-world, complex multipath conditions. Thomson claims that its “DTV products, including its first generation receivers, are far superior to earlier products in tracking static and fast-moving (i.e., “dynamic”) ghosts,” and asserts that throughout the industry, “chip design innovations, graphic [sic] equalizer improvements, and other breakthroughs advancing DTV receiver performance will continue to the point where, in 2002, indoor antennas can be used nearly everywhere to receive an ATSC signal.”¹² Philips states that “with its second-generation product [VSB2], [it] has been

¹² Thomson Comments at 12. Thomson mistakenly points to the use of **graphic** equalizers in DTV receivers; in fact it is **adaptive** equalizers that are incorporated into these receivers. Graphic equalizers are used in audio equipment!

able to improve coverage to a degree where it achieves reception quality similar to, and in some cases better than NTSC.” Philips adds that consumer products based on its third generation 8-VSB chip will be available by the fall of 2001, and indicates that this chip “is targeted to enable indoor reception even in strong multipath environments.” Philips Comments at 10-11. Zenith states that “its third- and fourth-generation demodulator chips [show] dramatic improvement in multipath performance for VSB receivers,” and that “new generations of chips and receivers will continue to improve indoor reception.” Zenith Comments at 10. NxtWave, led by Matt Miller, the preeminent supplier of 8-VSB-related promises, indicates that its “second-generation ATSC demodulator chip will be available in the fourth quarter of 2000,” and claims that “this chip will significantly advance reception capabilities in severely-distorted, time-varying propagation conditions.” NxtWave Comments at 6.

Without valid field trial data to back up these promises, the Commission should now reject these representations from equipment and chipset manufacturers (as well as promises made in the press and in private meetings) as irrelevant, self-serving marketing claims. As described in detail in Sinclair’s Comments, the manufacturing community has lost substantial credibility over the past year. NxtWave in particular first promoted its claims of a technology “breakthrough” that would resolve the 8-VSB reception issue almost ten months ago.¹³ Similarly, Thomson indicated late last year that it too had made technological advances that would enable its 8-VSB receivers to reliably receive service under real-world conditions.¹⁴ Since those claims were made, equipment manufacturers have failed to present any evidence that the ATSC’s version of 8-VSB technology can support ease of reception and reliable over-the-air service to viewers with small, simple antennas in broadcasters’ core business areas. In fact, the Brazilian tests have shown that the latest-generation ATSC 8-VSB receivers incorporating the most

¹³ “NxtWave Communications’ Breakthrough Chip Makes Mobile and Indoor Reception of Broadcast Digital Television Possible,” *Business Wire* (August 24, 1999).

¹⁴ *See, e.g.*, “Thomson Outlines Broad Digital Agenda,” *Audio Week* (December 13, 1999).

recently developed technologies remain unable to provide adequate performance under real-world multipath conditions. Thus, manufacturers' claims should not prevent the Commission from giving broadcasters flexibility with respect to digital modulation; clearly, it would be irresponsible for the Commission to base its DTV transition policy on these new, similarly unsubstantiated promises.¹⁵

E. In the new digital marketplace, neither a rigid, residence-based, rooftop-antenna-delivered video service nor mere NTSC replication is enough

In its comments, Zenith states that "it is clear that that 8-VSB meets the ultimate performance goals for which it was designed and selected – NTSC service replication, maximum data rate, interference rejection, etc." Zenith Comments at 9. As an initial matter, Sinclair does not believe that ATSC 8-VSB currently even achieves NTSC replication; as described above, receiver manufacturers and other 8-VSB proponents have not presented hard data from neutrally-observed, real-world field trials to establish such performance. As discussed in Sinclair's comments, this failure appears to result from receiver manufacturers' adoption of a concept model for over-the-air consumer DTV service that was based on ACATS' mid-1990's test methodology for measuring signal strength. This test methodology was designed to minimize random multipath distortion and yield consistent and reproducible results, and for signal reception ACATS therefore relied on a 30-foot rooftop or tower-mounted highly directional antenna. While this may have been an appropriate model for those tests, such reception conditions are

¹⁵ As Sinclair described in its Comments, the most blatant instance of unsubstantiated self promotion last year came from NxtWave. Despite its claimed expertise and its comments' extended technical discussion and attachments, NxtWave remains a company with no proven track record of performance. NxtWave last year stated that its new NXT2000 chipset would "provide the highest reliability and performance available," "cancel transmission channel impairments such as static and dynamic multipath," and "allow rapid channel surfing capability." *See supra* note 13. Despite the Commission's reference to NxtWave's efforts in its rejection of the Sinclair Petition, NxtWave has never provided any evidence that these "breakthrough" chips provide any of these capabilities under real-world conditions. Now, NxtWave indicates in its comments and elsewhere that its next-generation product will improve indoor reception and even permit portable and mobile applications. These are the very capabilities that NxtWave's "miracle" chip was supposed to provide ten months ago, however, and, as before, NxtWave has provided no meaningful data to support these claims.

clearly not an appropriate model for consumer reception of free over-the-air broadcast service -- the use of such receiving configurations did not reveal the fundamental problem associated with ATSC 8-VSB reception in multipath environments. Not surprisingly, the DTV receivers designed to perform adequately under the ACATS test conditions function extremely poorly under actual, real-world consumer conditions, much worse in fact than their NTSC counterparts.

In Sinclair's view, this design decision was the result of receiver manufacturers' fundamental disinterest in the continued viability of terrestrial broadcasting in the digital marketplace. Following the Commission's adoption of the ATSC 8-VSB standard, Sinclair believes that receiver manufacturers made the crucial decision that designing and mass producing DTV receivers that could work in conjunction with simple antennas under complex multipath conditions would be too difficult, risky, and expensive a challenge. Now, as receiver manufacturers ask the Commission for another chance, broadcasters and the U.S. public are paying the price for this decision.

In addition, it is apparent that Zenith does not believe that portable service capability is required for NTSC service replication.¹⁶ Having claimed that ATSC 8-VSB currently achieves NTSC replication, Zenith goes on to say that the achievement of portability will likely require modification of the ATSC 8-VSB standard itself:

Recently, some in the broadcast industry have focused attention on the potential portable and mobile applications of DTV technology. If broadcasters and consumers desire such options in the future – options that were not contemplated when the ATSC DTV Standard was developed and adopted – there are **opportunities to augment** VSB transmissions by employing a mixed data mode of two or more simultaneous transmissions of varying data rates and robustness.

Zenith Comments at 9.

Sinclair disagrees with Zenith, and believes that (i) portable service already exists in the NTSC environment, (ii) NTSC replication as contemplated in fact includes such portable service, and (iii) such

¹⁶ Sinclair defines "portable" services as those received by persons traveling at or below walking speed.

portability is one of the minimum requirements of any DTV system. In contrast to ATSC 8-VSB, DVB-T permits robust portable reception.

Sinclair further believes that NTSC replication alone, including portability, is no longer a sufficient goal in the DTV transition. Consumer expectations for telecommunications products have been dramatically elevated since the mid-1990's, and the future of the broadcast industry hinges on licensees' ability to meet those expectations, including for mobile services. Unfortunately, the ATSC 8-VSB standard at the moment appears incapable of supporting the kind of advanced telecommunications capabilities that service providers in other spectrum bands will be able to offer. In contrast, DVB-T today provides mobile service capability and other service elements that would more than meet the minimum requirements of a DTV system; with its hierarchical modulation structure,¹⁷ broadcasters using DVB-T could achieve a wide range of operational modes and meet a variety of service goals.¹⁸ Thus, while maintenance of the ATSC 8-VSB status quo would stifle the entrepreneurial energy now emerging in the broadcast industry by limiting broadcasters to one, narrow business plan -- a fixed data rate, rigid,

¹⁷ With hierarchical modulation, a broadcaster can assign different levels of reception priority to separate portions of its bitstream. One portion of a broadcaster's bitstream can be assigned a high priority for reception, reducing the data rate for that programming stream but permitting its reception in portable environments, while another portion of that bitstream can be assigned a lower priority, permitting an HDTV data rate but limiting reception of that HDTV stream to fixed environments.

¹⁸ The capabilities of COFDM and DVB-T were demonstrated once more at the NAB Convention in early April 2000. Pursuant to an STA from the Commission, Sinclair's Las Vegas station, KVWB, transmitted simultaneously an HDTV programming stream received on a 60-inch plasma screen and a Standard Definition TV programming stream received by a laptop-sized portable Nokia DTV receiver. Both of these DVB-T programming streams were successfully received at the randomly-situated exhibition booth of the Acrodyne Communications, Inc. (NASDAQ, symbol ACRO), inside the steel and concrete Las Vegas Convention Center, seventeen miles from the KVWB transmitter site, using small, simple, portable antennas. In contrast, at the CEA booth, HDTV reception through two ATSC 8-VSB receivers was achieved by using a coaxial cable to connect those receivers to an antenna on the convention center roof. *See* "Tale of a skunk at digital party," *Hollywood Reporter* (April 13, 2000); "Digital fight getting nastier," *Electronic Media* (April 17, 2000).

residence-based, rooftop-antenna-delivered video service -- a decision to give broadcasters flexibility with respect to DTV modulation would sustain and accelerate that energy.

II. Issues Related to Delay, Signal Coverage, and the DTV Table of Allotments Provide No Basis for a Commission Refusal to Give Broadcasters the Flexibility to Operate Using Either the ATSC 8-VSB or DVB-T Standard

A. A decision to give broadcasters the flexibility to operate using either the ATSC 8-VSB or DVB-T standard presents less of a risk of delay in the DTV transition than continued exclusive reliance on the non-performing 8-VSB standard

Numerous 8-VSB proponents argue that a proceeding to consider whether to give broadcasters the flexibility to operate using either ATSC 8-VSB or DVB-T would substantially delay the transition to DTV. *See, e.g.*, CEA Comments at 24; Philips Comments at 13. These concerns are misplaced. In fact, as discussed below, it is maintenance of the status quo that continues to fuel consumer uncertainty, heighten broadcaster risk, and threaten indefinite delay of digital conversion.

By any reasonable measure, the Commission's current exclusive reliance on 8-VSB has brought the DTV transition down to a snail's pace. ATSC 8-VSB now appears to be on consumer life support, with only approximately 34,000 8-VSB DTV receivers (according to CEA) sold in this country to date, a figure representing little more than one-thirtieth of one percent of U.S. TV households.¹⁹ As pointed out in Sinclair's Comments, even this number overstates the growth of 8-VSB DTV service. The majority of these units are likely still in the distribution chain, purchased by consumer electronics distributors, retailers, professional engineers, and broadcasters, rather than consumers.

Of course, Philips and other 8-VSB proponents cannot help but point to various indicia as evidence of substantial DTV development.²⁰ Such characterizations are not merely the distortion of

¹⁹ In comparison, in the United Kingdom, approximately 673,000 DVB-T set-top boxes were in use by consumers as of the end of March 2000. *See* <http://www.digitag.org>. DVB-T service began there in November 1998.

²⁰ Philips states that "[l]ess than 18 months after their first digital broadcasts were initiated, DTV is spawning new markets for consumer electronics equipment, broadcast production equipment,

Footnote continued on next page

ambiguous evidence; they represent gross mischaracterizations that turn the obvious dearth of consumer interest in ATSC 8-VSB on its head. The Commission must ignore this futile spin effort and recognize the current state of the DTV transition for what it is: an ongoing failure.

As indicated above, even 8-VSB proponents concede that there has been a problem with ATSC 8-VSB reception, and most indicate that it will be a year or more before these multipath reception problems are fully resolved. Philips says that its highly improved third-generation chips will not be incorporated into commercially available DTV receivers until the fall of 2001, and Thomson states that it and other manufacturers will be unable to deliver 8-VSB receivers that overcome multipath effects and provide indoor reception “nearly everywhere” until 2002.²¹ NxtWave indicates that its next-generation chip will enter the marketplace by the end of 2000, but it is unclear when it will be incorporated into any ATSC 8-VSB receivers.²² In addition, if fixing the ATSC 8-VSB reception problem requires a standards-setting process for a new, backwards-compatible permutation of the ATSC 8-VSB standard, as contemplated by Zenith, that process would likely take two years or more.

Footnote continued from previous page

programming and a growing array of DTV-related products and services.” Philips adds that “consumers are also purchasing fully integrated HDTV receivers, as well as set-top converter boxes. Significant price reductions in DTV manufacturers’ 2000 model products no doubt are contributing to these strong sales.” Philips Comments at 2.

²¹ Philips Comments at 10; Thomson Comments at 12. In contrast, Sinclair could receive service through simple antennas “nearly everywhere” – at twice as many sites as where ATSC 8-VSB was receivable -- in the summer of **1999** during its DVB-T field trials in Baltimore, and DVB-T broadcast viewers in the U.K and elsewhere are able to receive DTV service through such antennas “nearly everywhere” today.

²² In their comments, equipment manufacturers were united in their opposition to the imposition of receiver performance standards. Without such standards, it is unlikely that receiver manufacturers will all utilize the same adaptive equalizer technology. Even if some 8-VSB technologies are able to overcome complex multipath conditions, it is unlikely that all 8-VSB receivers will be equally effective in such environments. It is likely that the receivers with adequate DTV reception performance will be the most expensive, and that U.S. consumers will therefore have an incentive to choose less expensive DTV receivers that provide adequate service through a cable connection. This outcome is also unfavorable for broadcasters.

While there is no valid evidence that receiver and chip manufacturers will be able to cure the 8-VSB reception problems by their projected dates, if ever, such projections are instructive when analyzing the issue of delay. 8-VSB proponents allege that delay that would result from a Commission decision to give broadcasters flexibility with respect to DTV modulation; even assuming for the moment the validity of these proponents' own timelines, however, no rational consumer would purchase an ATSC 8-VSB receiver until 2002, when improved 8-VSB performance would finally be a reality. Thus, even if the Commission overlooks manufacturers' lack of credibility and believes their latest promises, it can expect the current DTV inertia to last another eighteen months or more. What are DTV broadcasters supposed to do during this period?

Of course, Sinclair believes that the Commission should not trust these manufacturer promises or rely on manufacturers' charts and graphs or their secret and undocumented field trials. In the end, the Commission simply lacks control over these companies' technological capabilities and the pace of their efforts, and continued exclusive reliance on 8-VSB technology would risk an indefinite drought of consumer interest in DTV and a possible decade-plus delay in the digital transition. For broadcasters, the uncertainty associated with this approach is untenable.

In contrast, a decision to give broadcasters the flexibility to operate using either the ATSC 8-VSB or DVB-T standard would be a certain, risk-free solution to the current 8-VSB reception problems. DVB-T is a proven technology that has been implemented and commercialized outside the United States, and it has been and will continue to be demonstrated and tested domestically; in every instance, DVB-T has been shown to provide assured ease of reception and reliable over-the-air service to broadcasters' viewers across the full range of reception environments. A policy of flexibility with respect to DTV modulation would protect broadcasters and U.S. consumers by asserting control over the progress and pace of the DTV transition.

From a timing perspective, a decision to give broadcasters the flexibility to operate using ATSC 8-VSB or DVB-T promises a far more favorable outcome than continued exclusive reliance on the ATSC 8-VSB standard.²³ Procedurally, Sinclair believes that the extensive record on these DTV modulation issues permits the Commission to issue an order establishing this flexible policy without first conducting a notice and comment rulemaking. Such an order would be a “logical outgrowth” of the Commission’s evaluation of ATSC 8-VSB performance in the Biennial Review proceeding.²⁴ Following such an order, Sinclair believes that implementation of the COFDM-based DVB-T standard could likely be fully concluded by 2002, which is the earliest in practical terms that equipment manufacturers have promised to resolve the 8-VSB multipath reception problems and before any new 8-VSB backwards-compatible standards-setting would be completed. Any outstanding technical issues for DVB-T operations could likely be conducted in little more than six months, and following that process, DVB-T set-top boxes could become rapidly available.²⁵ Broadcasters could quickly make the necessary modification to their

²³ In considering the delay issue, the Commission should also take into account that there are factors that are likely to delay the DTV rollout regardless of the Commission’s decision on the DTV modulation issue. For instance, technical issues related to copyright protection recently led Sony to delay the delivery of its latest generation of DTV receivers to the retail marketplace. *See* “Sony Says Its Line of Digital HDTVs Will be Delayed,” *Wall Street Journal* (June 8, 2000). Thus, 8-VSB reception problems notwithstanding, the time devoted to establishing an alternative DTV modulation standard would potentially have no effect at all on the speed of the transition.

²⁴ The D.C. Circuit Court, as well as several other circuits, have held that APA notice requirements are satisfied where a final rule is a “logical outgrowth” of a proposed rule. *Public Service Commission of the District of Columbia v. FCC*, 906 F.2d 713, 717 (D.C. Cir. 1990). A final rule will be deemed the logical outgrowth of a proposed rule if a new round of notice and comment would not provide commenters with their first opportunity to offer new and different criticisms that the agency might find convincing. *See American Water Works Association v. EPA*, 40 F.3d 1266, 1274 (D.C. Cir. 1994); *Fertilizer Institute v. EPA*, 935 F.2d 1303, 1311 (D.C. Cir. 1991).

²⁵ In a letter filed January 25, 2000 with the Commission, Pace Micro Technology, a DTV receiver manufacturer, indicated that if the Commission decided to permit COFDM/DVB-T operations in the U.S., it could have compatible DTV receivers available in the U.S. market in time for the 2000 Christmas shopping season, at prices fifty percent less than the price of the least expensive 8-VSB receiver. *See* Letter from David L. Novak, Marketing Manager, Pace Micro Technology – Americas, to William E. Kennard, Chairman, Federal Communications Commission (January 25, 2000).

transmitters – at an estimated cost of little more than \$7,000 – in order to begin transmitting DVB-T signals. Thus, if the Commission had granted Sinclair’s Petition and given broadcasters the flexibility to operate using DVB-T before the end of 1999, the broadcast industry would likely be less than a year away from a comprehensive and lasting solution to the DTV reception problem.

While 8-VSB proponents say that a decision to give broadcasters flexibility with respect to DTV modulation would create confusion for U.S. consumers, it is in fact well within the ability of receiver manufacturers to address and minimize any resulting uncertainty (which Sinclair expects to be minimal in any case). Like other huge corporations, these companies rely heavily on marketing and advertising activities in the normal course of business, and receiver manufacturers can use these same techniques to assure consumers that the introduction of DVB-T will enhance their free, over-the-air service options rather than jeopardize their DTV service. In addition, the Commission could foster consumer confidence by requiring that all DTV receivers be able to receive DVB-T service, as well as ATSC 8-VSB service, by some date certain in 2002. This action would have only a *de minimis* impact on the cost of consumer receivers.²⁶

B. Concerns with DVB-T signal strength are overblown, and, in contrast to the 8-VSB reception problem, broadcasters and viewers can compensate for any reduction of broadcast signal coverage that might result from a shift to DVB-T operations

In their comments, 8-VSB proponents once again argue that, assuming equal power levels, 8-VSB signals will be receivable considerably further from the DTV transmitter than COFDM signals. *See, e.g.*, CEA Comments at 18-19; Zenith Comments at 7. As Sinclair has indicated repeatedly during the course

²⁶ Receiver manufacturers should be able to comply with such a requirement with little difficulty. For the U.S. market, these companies already manufacture digital receivers compatible with two or more modulation standards, including receivers with the ability to receive 8-VSB, DBS, and cable service. (Outside the United States, such multiple modulation receivers typically have the ability to receive DVB-T signals, not ATSC 8-VSB transmissions.) Thus, it appears that these companies should be able to supply 8-VSB/DVB-T television sets to the U.S. marketplace at little additional cost.

of the DTV modulation controversy, the results from Sinclair's field trials conflict with that conclusion. It is true that, assuming laboratory conditions (gaussian channels with Ricean impairments), the ATSC 8-VSB standard may appear to permit greater signal coverage than COFDM, since 8-VSB signals can be decoded at power levels below the decoding threshold for COFDM. However, Sinclair's own tests demonstrated that in a real-world environment, including complex multipath conditions, this difference decreases to 2 dB. *Comparative Study* at 16. More importantly, under the same real-world conditions, this 2 dB difference does not lead to any material difference in the receivability of the 8-VSB and COFDM signals. *See Comparative Study* at 15.

Zenith goes even further and argues that “[u]se of COFDM would result in a significant loss of suburban and rural viewers who live on the fringe of a station's NTSC service area, far surpassing the comparatively fewer number of viewers in dense urban areas who might be affected by multipath interference.” Zenith Comments at 7. Even if for the sake of argument one assumes less coverage for COFDM under real-world conditions, Zenith's claim is directly contrary to the analysis of the Commission's Office of Engineering and Technology (“OET”). In its report, OET estimated that that in the top 10 markets in the U.S., COFDM-based operations would result in a net advantage in population served of approximately 65,000.²⁷ Clearly, it is contrary to common sense to argue that the “dense” urban areas within broadcasters' core business contain far fewer TV households than the peripheral market areas at the Grade B fringe.

Footnote continued from previous page

²⁷ “DTV Report on COFDM and 8-VSB Performance,” Office of Engineering and Technology, Federal Communications Commission, FCC/OET 99-2, at 16 (September 30, 1999) (“OET Report”). This is the case even though OET's analysis included certain assumptions that overstate the likely service availability for ATSC 8-VSB in core urban areas. Specifically, OET assumed that in core urban areas with sufficient signal strength, 50 percent of 8-VSB receivers would successfully receive a signal, a figure that Sinclair believes is substantially too high.

In any case, unlike with 8-VSB, DVB-T broadcasters and viewers could both take steps to ensure that their COFDM-based signals are receivable at the market periphery. As described in detail in Sinclair's Comments, DVB-T broadcasters could employ on-channel directed retransmission facilities²⁸ to fill in any areas lacking sufficient signal strength while avoiding adjacent market interference.²⁹ Meanwhile, TV households at the Grade B fringe could utilize preamplifiers costing between \$10 and \$20 to ensure high-quality DTV reception. In contrast, there is no reasonable technological solution for the urban viewer whose location suffers from multipath distortion. Short of deploying an expensive rooftop antenna or subscribing to cable, urban households relying on small, simple antennas will be powerless to overcome 8-VSB multipath effects.

²⁸ On-channel directed retransmission facilities avoid interference to NTSC and DTV service in adjacent markets by using directional antennas that steer the on-channel repeater's signal into the targeted market, on towers that are limited in height.

Sinclair notes that, with DVB-T, broadcasters will be able to operate single-frequency networks that permit on-channel retransmission facilities to operate at much higher power levels and thereby provide greater coverage. In contrast to the simple on-channel feedback limited repeaters proposed for ATSC 8-VSB, single-frequency networks are not with possible with that standard, since 8-VSB does not permit the operation of real synchronized transmitters at broadcast-required power levels.

²⁹ As discussed in Sinclair's Comments, it appears unlikely that there will be sufficient spectrum during the DTV transition to permit the operation of translators. This spectrum scarcity may also prevent the operation of LPTV stations. Roy Stewart, Chief of the Mass Media Bureau, recently stated that "[I]t is well established that there is insufficient broadcast spectrum to accommodate thousands of LPTV stations with full interference protection without substantially impacting the transition to digital television, particularly in the rural areas." *See* "FCC Questions Low Power TV Broadband Bill," Newsbytes (June 15, 2000). Given this situation, television viewers located in DTV and NTSC stations' coverage gaps may be able to receive television service only if the Commission permits DVB-T operations and enables broadcasters to deploy DTV on-channel retransmission facilities. If the Commission instead maintains exclusive reliance on the ATSC 8-VSB standard, those viewers who today rely on translators or LPTV stations to receive over-the-air TV will likely have no access to over-the-air service during the transition, and may lose access to over-the-air service altogether at the DTV transition's conclusion.

C. A decision to give broadcasters the flexibility to operate using either the ATSC 8-VSB or DVB-T standard will likely not require any change to the DTV Table of Allotments

Several 8-VSB proponents argue in their comments that a decision to give broadcasters the flexibility to operating using either the ATSC 8-VSB or DVB-T standard would require the Commission to overhaul the current DTV Table of Allotments. *See, e.g.*, CEA Comments at 14; Philips Comments at 14. Sinclair believes that this claim is meritless, and that such a flexible policy with respect to DTV modulation can be established without significant modification of the DTV Table. The Commission should reject this scare tactic.

OET found in its September 30, 1999 report on DTV modulation issues that COFDM broadcasters could operate at power levels 4 dB higher than allotted 8-VSB power levels without causing any meaningful additional interference to NTSC stations during the transition.³⁰ Sinclair itself has proposed that the Commission require DVB-T broadcasters to limit their power levels to the extent necessary to avoid causing interference to other NTSC and DTV stations above what would result from 8-VSB stations' operations at maximum permitted power levels.³¹ This would assure that DVB-T broadcasters can operate in a manner consistent with the current DTV Table of Allotments.

III. The Commission Must Act in the Interest of U.S. Broadcast Licensees and All U.S. Television Households Rather Than in the Interest of Receiver and Chipset Manufacturers and Early Adopters

A. Broadcast licensees have been required to make a huge investment to convert to digital operations, and their businesses will be devastated if the DTV transition is a failure

As the Commission decides how best to proceed with the digital transition, it should work to protect the interests of its broadcast licensees and give considerable weight to broadcasters' views. As

³⁰ OET Report at 17-18.

Sinclair pointed out in its Comments, it is broadcasters that have been required to make a huge investment in the digital conversion, and that have the most to lose if the DTV transition fails. The vast majority of the broadcast companies commenting on the Commission's Biennial Review NPRM (either directly themselves or through coalitions or associations) now favor at least a reexamination of the current DTV modulation standard, and a substantial proportion of these commenters support a decision to give broadcasters the flexibility to operate using either the ATSC 8-VSB or DVB-T standard.

Broadcasters' need for the Commission's protection is critical. Nothing is more fundamental to broadcasters' business than consumers' ability to receive their over-the-air signals easily and reliably, and broadcasters have little or no control over the scientific, engineering, and manufacturing efforts underway to resolve the technical problems plaguing ATSC 8-VSB reception. At the moment, broadcasters are literally at the mercy of the very equipment manufacturers that failed to provide a viable first-generation ATSC 8-VSB product to the U.S. public and that appear to have a greater commitment to cable and satellite delivery technologies. A decision to give broadcasters the flexibility to operate using either the ATSC 8-VSB or DVB-T standard would reduce the excessive leverage of these equipment manufacturers, and would assure broadcasters that their investment in digital technology will yield a viable business in the new telecommunications marketplace.

B. The views of equipment manufacturers should carry less weight in this proceeding, and the Commission should not reward their efforts to blame others for the ongoing failure of DTV

In this proceeding, the Commission should be less concerned with the interests and views of receiver and chipset manufacturers than with those of its broadcasters. The goal of these companies is to

Footnote continued from previous page

³¹ If such power limitations reduce DVB-T reception coverage below what is now provided by NTSC stations, DVB-T broadcasters will be able to compensate for this loss of coverage through the use of on-channel directed retransmission facilities.

sell as many digital display units as possible, without regard to the method of signal delivery, and Sinclair continues to believe that the vast majority of equipment manufacturers has come to the conclusion that terrestrial broadcasting will play a minimal role in the digital video market. As Sinclair argued in its Comments, it was this fundamental manufacturer disinterest in terrestrial, over-the-air broadcasting technology that has led to the current 8-VSB reception problems.

Now that ATSC 8-VSB receivers have been shown to perform extremely poorly under actual, real-world consumer conditions, manufacturers are making a concerted effort to save face and shift blame. First, with surprising audacity, CEA, Philips, Thomson and other 8-VSB proponents argue that the failure of “early” DTV receivers to perform adequately in multipath environments actually justifies continued exclusive reliance on 8-VSB technology. They claim that there is no problem inherent to the ATSC 8-VSB standard, that the source of the multipath reception lay in the design of those early DTV receivers, and that once these receivers are sufficiently improved these reception difficulties will disappear. See CEA Comments at 22-23; Philips Comments at 6; Thomson Comments at 10-11. Rather than work to the benefit of 8-VSB proponents, however, manufacturers’ knowing and willing delivery into the marketplace of what are essentially defective DTV receivers should serve to discredit these parties and trivialize their new promises regarding improved ATSC 8-VSB performance. The multipath reception problems currently plaguing ATSC 8-VSB receivers should only weigh in favor of a decision to give broadcasters flexibility with respect to DTV modulation.

As they have done before, CEA, Thomson, and others attempt to assign blame for the slow progress of the DTV transition to broadcasters; they again claim that broadcasters’ failure to generate HDTV programming is primarily responsible for the ongoing consumer disinterest in DTV. CEA Comments at 7-11; Thomson Comments at 21. As Sinclair pointed out in its Comments, this contention is without merit, relying on an acceptance of the false premise that HDTV is the only legitimate use of the DTV spectrum. Most broadcasters now view HDTV as only one category of service, and also are

interested in flexible applications that demand ease of reception and ubiquitous, reliable over-the-air service. If the ATSC 8-VSB standard offered broadcasters such capabilities, these flexible DTV applications would be driving the DTV transition forward rapidly, and the lack of HDTV content would be irrelevant.

Thomson not only tries to blame Sinclair and other broadcasters for the current plight of ATSC 8-VSB service, it charges that Sinclair's efforts on the DTV modulation issue "demonstrat[e] a breathtaking disregard for the American consumer." In addition, Thomson accuses Sinclair of an "if we repeat it often enough then it must be true" approach that ignores both the evolving state of DTV technology and the need to move the DTV transition forward in a manner that serves the needs of all stakeholders. Thomson Comments at 8-9.

Coming from Thomson, this attack is particularly outrageous. Thomson is a manufacturer of consumer-electronics equipment that is no doubt pursuing its own narrow self-interest in the global transition to digital video services, rather than the interests of the U.S. broadcast industry or U.S. consumers. In particular, Thomson, a French, government-owned corporation, has formed a partnership with the licensed Direct Broadcast Satellite ("DBS") system of DirecTV to develop a range of interactive digital services in the U.S., and, given this interest, Thomson's commitment to a successful digital conversion for U.S. terrestrial over-the-air broadcasters is open to question. It may be in Thomson's best interests for terrestrial DTV service in the U.S. to remain unreliable, thereby forcing TV households in this country to subscribe to pay television services like DirecTV.

In contrast to manufacturers like Thomson, Sinclair and other broadcasters have a statutory obligation to serve their communities of license. While Sinclair like other corporations is certainly determined to optimize its business model and maximize its market capitalization, it is also seeking to use its digital spectrum in innovative ways that will best serve consumers in those local communities.

Counter to Thomson's allegations, Sinclair, one of the largest TV group owners in the country, is certainly not working counter to the interests of its broadcast audience.

Sinclair conceded that it has presented its position on the ATSC 8-VSB standard numerous times and in a variety of settings. Given the critical importance of this issue to the DTV transition, however, Sinclair's persistence is warranted. This approach is further justified by the financial stake that receiver and chipset manufacturers have in the maintenance of the status quo, the extent of their resources for protecting that status quo, and the degree to which the Commission appears to be relying on the representations of this manufacturing community. Unfortunately for the broadcast industry and U.S. consumers, manufacturers' "if you promise something often enough, some people might believe it will actually happen" approach has worked to this point. It is time for the Commission to look in another direction for policy guidance, and to act in the interests of the U.S. broadcast industry and the U.S. public.

C. The interest in protecting consumers who have already purchased 8-VSB DTV receivers is outweighed by the interest in ensuring ease of reception and reliable over-the-air DTV service for the U.S. public

Zenith argues that a decision to give broadcasters flexibility with respect to DTV modulation would harm consumers who have already purchased an 8-VSB DTV receiver. Zenith Comments at 13. As Sinclair has pointed out previously, concern over these consumers' prior investment in ATSC 8-VSB technology is no basis for maintaining the status quo.

First, this flexible policy would not mean the replacement of 8-VSB, and broadcasters and manufacturers committed to ATSC 8-VSB operations will be able to move forward with their business plans. Only if 8-VSB never permits ease of reception and reliable over-the-air service will these companies and consumers be harmed by their prior investment.

Second, the effect on consumers would be minimal in any event, with only a tiny fraction of U.S. TV households (at a maximum, less than one-thirtieth of one percent) having invested in 8-VSB equipment to date. The Commission must be responsive to the evolution of technology, and it would be

irresponsible for the Commission to refuse to bring acceptable DTV service to the vast majority of Americans in order to protect the value of these prior ATSC 8-VSB purchases.

Moreover, the concern expressed by 8-VSB receiver manufacturers regarding this “legacy” issue is likely disingenuous. These manufacturers are fully aware that within the foreseeable future many prior 8-VSB purchasers will be forced to buy new digital broadcast receivers regardless of the Commission’s policy towards the DTV modulation standard. First, as described above, receiver manufacturers have admitted that their initial ATSC 8-VSB receivers provide poor reception performance and are already effectively obsolete. Clearly, any prior 8-VSB purchaser will have to upgrade to a new receiver if he or she wants to enjoy reasonable broadcast reception and an acceptable level of viewing functionality. In addition, today’s DTV receivers also lack the 1394 “fire wire” standard necessary to connect those receivers to other systems, and once fire wire-equipped DTV receivers become available, a substantial proportion of early DTV adopters are likely to upgrade to those receivers.

Sinclair believes that manufacturers are concerned not with harm to early 8-VSB adopters, but with harm to the value of their unsold inventory of ATSC 8-VSB receivers and with the threat of terrestrial, over-the-air broadcast television to their new businesses. If the Commission gives broadcasters the flexibility to operate using either ATSC 8-VSB or DVB-T, the value of thousands of ATSC 8-VSB DTV receivers sitting on warehouse shelves around the United States will likely plummet precipitously, a result that these manufacturers are no doubt desperate to avoid. At the same time, the public will discover and subsequently embrace the compelling capabilities of DVB-T.

Conclusion

For all of the aforementioned reasons, Sinclair continues to urge the Commission to expeditiously give broadcasters the flexibility to operate using either the ATSC 8-VSB or the DVB-T standard, making the benefits of COFDM/DVB-T technology available to the U.S. public.

Respectfully submitted,

SINCLAIR BROADCAST GROUP, INC.

By: 
Martin R. Leader

Stephen J. Berman

Its Attorneys

SHAW PITTMAN
2001 Pennsylvania Avenue, N.W.
Suite 400
Washington, D.C. 20006
(202) 659-3494

Dated: June 16, 2000

CERTIFICATE OF SERVICE

I, Deniece B. Mayberry, hereby certify that I have on this the 16th day of June, 2000, caused a copy of the foregoing "Reply Comments of Sinclair Broadcast Group, Inc." to be served by first class U.S. Mail, postage prepaid, upon the following:

Robert K. Graves
Chairman
Mark S. Richer
Executive Director
Advanced Television Systems Committee
1750 K Street, NW
Suite 1200
Washington, DC 20006

David R. Siddall, Esq.
Jason E. Friedrich, Esq.
Verner, Liipfert, Bernhard, McPherson &
Hand, Chartered
901 15th Street, NW
Suite 700
Washington, DC 20005
Counsel for Consumer Electronics
Association & NxtWave
Communications

Lawrence R. Sidman, Esq.
John M.R. Kneuer, Esq.
Sara Morris, Esq.
Verner, Liipfert, Bernhard, McPherson &
Hand, Chartered
901 15th Street, NW
Suite 700
Washington, DC 20005
Counsel for Phillips Electronics North
America Corporation & Thomson Consumer
Electronics, Inc.

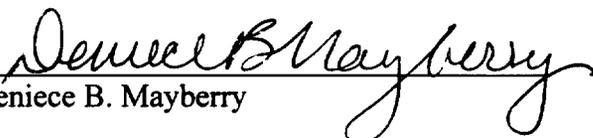
Gary Klein, Esq.
Vice President, Government & Legal
Affairs
Michael Petricone, Esq.
Vice President, Technology Policy
Consumer Electronics Association
2500 Wilson Blvd.
Arlington, VA 22201

Thomas B. Patton
Vice President, Government Relations
Philips Electronics North America Corp.
1300 Eye Street, NW
Suite 1070 East
Washington, DC 20005

Matthew D. Miller
President & CEO
NxtWave Communications, Inc.
Rt. 413 & Doublewoods Road
One Summit Square
Langhorne, PA 19047

David H. Arland
Director, Government and Public Relations,
Americas
Thomson Consumer Electronics, Inc.
P.O. Box 1976, INH-430
Indianapolis, IN 46206-1976

Richard M. Lewis
Senior Vice President,
Research & Technology
John I. Taylor
Vice President, Public Affairs
Zenith Electronics Corporation
1000 Milwaukee Avenue
Glenview, IL 60025-2495


Deniece B. Mayberry